NATIONAL BUREAU OF STANDARDS REPORT

8572

REPORT ON LATIN AMERICA TRAVEL (V)

CONCERNING

LATIN AMERICAN STANDARDS

AND

STANDARDS FOR IRON AND STEEL

Sept. 26 - Oct. 17, 1964

By

LeRoy L. Wyman

Special Assistant to the Director
(for International Standards)
Institute for Applied Technology

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS

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* NBS Group, Joint Institute for Laboratory Astrophysics at the University of Colorado.
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1. ABSTRACT:

This report covers the participation in the standards-writing seminar for steel pipe and tubes held in Santiago, Chile, under the auspices of the Pan-American Standards Commission (COPANT) - Organization of American States (OAS) - Latin American Iron and Steel Institute (ILAFA).

Over twenty items involving tubes, mechanical tubing, couplings, threads, etc., were drafted in final form to submit for adoption as Pan American Standards.

2. SPONSORSHIP:

This trip was under the sponsorship of the Institute for Applied Technology, National Bureau of Standards, Department of Commerce.

The American Standards Association represents the United States with respect to standards practices at the international level, thus is a member of the Pan-American Standards Commission.

In attending this seminar on steel pipe and tubes, the author was designated by ASA as the U. S. delegate.

3. OBJECTIVES OF TRIP:

Participation in this second seminar on steel pipes and tubes is a continuation of the 1963 seminar on the same category of materials standards. As the U. S. A. delegate, the author was responsible for presenting the viewpoints of the USA National Committee for International Standardization of Steel and for maintaining the interests of the U. S. in the formulation of COPANT standards.

4.0 Pre-Seminar Proposal Review

4.1 Seminar Program

At the close of the last seminar on pipes and tubes in November, 1963 a program and agenda for this present seminar was established (See NBS Report No. 8182). For convenience, these were as follows

1. Preferred Diameters and Thicknesses (Chile)
2. Threads for Steel Tubes (Chile)
3. Couplings, Steel, Threaded and Non-Threaded (Chile)
4. Couplings, Malleable Iron, Threaded (Uruguay)
5. Steel Tubes for Protection of Electrical Conductors (Mexico)
6. Steel Tubes, Seamless, for High Pressure Boilers (Brazil)
   (Based on ASTM A192, A209 and A210; DIN 17175
7. Steel Tubes, Seamless, for Low Pressure Boilers (Brazil)
   (Based on ASTM A178 and DIN 17175)
8. Steel Tubes, Welded, for Boilers (Mexico)
   (Based on ASTM A178 and A226)
9. Steel Tubes, Seamless, for High Temperatures (Argentina)
   (Based on ASTM A106 and DIN 1629)
10. Steel Tubes for Transmission (Mexico)
    (Based on ASTM A53)
11. Steel Tubes for Structural Uses (Argentina)

Schedule of Procedure

By March 31, 1964 - Size Series to be reported to ILAFA, Santiago

May 30, 1964 - Deadline for other proposals

June 15, 1964 - Official proposals issued by ILAFA

Sept. 15, 1964 - Deadline for comments on proposals

Seminar - Begin last week of October and first two weeks of November, 1964

It was fully agreed that this was the established program and agenda, and it was NOT to be changed by anyone.

Following the program of proposal preparation, about half of the agenda items were received on time, and copies sent to the U. S. in time to permit their translation into English and their subsequent study by pertinent ASTM sub-committees at the request of the USA National Committee

Resulting from this, this delegate was armed with the various comments from the U.S. reviewers of these proposals.

Inasmuch as several of the items were outside of present ASTM activities, these American Standards and comments were obtained from ASA Headquarters.

It might be best to state at this point that about half of the U. S. comments concerned apparent points of difference which were due primarily to two factors: - (1) Terminology, and (2) Translation.

Terminology is a major factor because (a) it varies considerably from one L.A. country to another; and (b) we have many terms which have no counterpart in Spanish. For example, there was much ado in a previous seminar because there was no spanish equivalent for our term "galvanized". However, this seminar decided to coin the term "cincado", which the unwitting would retranslate as "zinced".

5.0 Santiago, Chile, September 27 - October 16, 1964

Mr. Morris Allen	Commercial Attache
Mr. Herbert D. Swett	Economic Officer
Mr. Robert Walker	Agricultural Officer - U.S. Embassy
Mr. Martin Prochnik	Geologist - U.S. Embassy
Mr. Casper D. Green	Deputy Director, AID Mission
Ing. Fernando Aquirre T.	Secy-General, Latin-American Iron & Steel Institute (ILAFA)
Ing. Anibal Gomez	Engineer Coordinator, ILAFA Seminar Director
Prof. Juan Cabrerizo	Director, INANTIC (Peru) Field Director of COPANT Seminars
Dr. Ing. Don Carlos Hoerning	Director, Instituto Nacional de Investigaciones Tecnologicas y Normalizaciou (INDITECNOR)

5.1 Santiago, Chile, U.S. Embassy

My initial visit in Santiago was to the Embassy where I renewed acquaintance with Messrs. Allen and Swett; heard of recent developments of mutual interest; sought information on a pulp and paper meeting of interest to Drs. McPherson and Hobbs of NBS; availed myself of the services of the Embassy cashier for money exchange.

I subsequently met Mr. Walker, who immediately proceeded to find out that the pulp and paper meeting had been cancelled and postponed until 1965; to which effect I sent word back to Dr. McPherson.

There was to be a meeting in Santiago on forestry products during the second week of October, and Mr. Swett agreed to obtain copies of the papers which were presented, and would forward them to us at NBS.

5.2 Seminar

5.2.1 Opening Session

As the delegates assembled for the opening of the seminar, I presented my ASA delegate credential to Ings. Aquirre T. and A. Gomez for record as the USA representative.

This opening session was an informal affair with about 18 present; many of whom were "veterans" of the '63 seminar on pipes and tubes. Thus, there were many fond reunions.

There were brief welcoming speeches by Ings. Aquirre T. and Gomez, and a longer dissertation by Prof. Juan Cabrerizo (Peru), who is the Field Director of Seminars this year.

5.2.1.1 List of Participants

NAME	AFFILIATION
Anibal GOMEZ	ILAFA-Casilla 13810 Santiago, Chile
Eduardo ABRIL	Industries KAISER Argentina Casilla Correo 8 Cordoba - Argentina
Fructuoso BERGANZA	Establecimientos Metalurgicos TUBOMET, S.A. Cabildo 575 - Avellaneda Pcia.Bs.Aires - Argentina

List of Participants - Continued

Jorge Raul RIVERA	ACINDAR, Industria Argentina de Aceros S.A. Villa Constitucion - Argentina
Joaquin RODRIGUEZ G.	DALMINE S.A.F.T.A. 25 de Mayo 386 Bs. Aires - Argentina
Pedro J. PANZA	Yacimientos Petroliferos Fiscales Avda. Pte. Roque Saenz Peña 777 Of. 601 Bs. Aires - Argentina
Luis A. ECHEVERRIA	IRAM Chile 1192 Bs. Aires - Argentina
Jamil HALLAGE	A.B.N.T. Mineracão Geral do Brasil Caixa Postal 71 Mogi-das Cruzez Sao Paulo-Brasil (Representante A.B.N.T.)
Arnaldo CORREA	FORNASA S.A. Industria e Comercio Caixa Postal 73 Volta Redonda - Brasil
Horia KURITESCU	Cia Siderurgica Mannesmann Caixa Postal 2153 Belo Horizonte - Brasil
Enrique LOZANO V.	Ind. de Ing. Mecanica Distral S. A. Calle 13 N°14-42, Piso 12 Bogota - Colombia
Hugo BRANGIER M.	Cia.Acero del Pacifico S.A. CAP Bandera 84 Santiago - Chile
Fernando CISTERNAS B.	Cia.Productos de Acero S.A. COMPAC S.A. Avda. Las Americas 1022 Santiago - Chile

List of Participants - Continued

Gustavo CAMPOS R.	ILAFA Casilla 13810 Santiago - Chile
Raul PAROT	CIC - Compañia Industrias Chilenas S.A. Avda. Beauchef 1621
Cesar H. GRACIA	Hojalata y Lamina, S. A. Paseo de la Reforma 116 6° Piso Mexico, D.F. - Mexico
Vicente PEREZ A.	Petroleos Mexicanos Juarez N° 94 Mexico 1, D.F. - Mexico
Alberto PLAUCHU	Comision Federal de Electricidad Rodano 14 - Mexico 5.D.F. - Mexico
Manual QUIROS T.	Direccion Gral.de Normas Avda. Cuautemoc # 80 piso 1° Mexico D.F. - Mexico
Rafael MONROY C.	TAMSA Paris 15 - piso 5° Mexico D.F. - Mexico
Samuel ALAZRAKI T.	Camas y Tubos S.A. Apartado Postal 11 Sta.Clara Edo. de Mexico - Mexico
LeRoy L. WYMAN	200 NW Building, NBS Washington, D.C. 20234 USA (Representante de ASA)
Luis HILDEBRANT	Promecan Ingenieros S.A. Calle San Jose 373 Callao - Peru
Hans R. EGGERS T.	CINOCA S.A. Martin Garcia 1232 Pta. Ind. Coronel Raiz 949 Montevideo - Uruguay (Representante UNITET)

5.2.1.2 Seminar Informatives

During the discussion by Ing. Cabrerizo we were to learn that "it had been decided" that (a) the writing of specifications for electrical conduit would be done by the electro-technical committee of COPANT, and (b) that because some proposals were not received on time (although they were brought to the meeting), they would not be included in the agenda for the seminar.

This latter concerned the Brazilian commitments on the agenda agreed upon a year ago.

5.2.2 Policy Decisions

Although not decided at the opening session, the delegates later took action to the effect that (1) this group would write specifications for electrical conduit and (2) that the Brazilian delegates had fulfilled thei commitments in preparing proposals but "red tape" had held up submittal - so these proposals would be included in the seminar agenda.

5.2.3 Seminar Business

After agreeing on the order in which we would study the various proposals, the group settled down to business. In so doing, I called attention to several factors brought out in our USA perusal of the proposals. These were of a general nature and pertinent to several proposals in that they concerned (a) the clarification of re-testing requirements where the original specimen may have failed in one attribute. Is it necessary to re-test all attributes? (b) Sampling procedures should be in each specification rather than in a general requirement specification.

More than a few of the USA detailed comments were aroused because of terminology and translation difficulties. These were noted and every effort was made during the seminar to eliminate the possibility of such re-occurring.

5.2.3.1 Steel Classification Proposal

This proposal had appreciably departed from its original concept and in its present form held some potentially misleading concepts, particularly with respect to the correlating of the COPANT designations with SAE-AISI designations and compositions.

In addition, there was further deparature in the direction of including requirements in the proposed document.

Both of these weaknesses were summarily corrected and two documents resulted.

5.2.3.2 Preferred Diameters and Wall Thicknesses

This proposal drew immediate criticism inasmuch as there were nearly a score of standard "english sizes" which were not included in the table. At the insistence of the Mexican delegation, this omission was corrected.

5.2.3.3 Threads for Pipes and Tubes

This proposal was exclusive in that it referred only to the British Whitworth thread, and it soon because obvious that most of the delegates were insistent that both the ASA and ISO types be acted upon.

As a consequence, the initial proposal was worked through in detail as an "ISO" thread type, and a task group was appointed to draw up a parallel proposal for ASA threads.

5.2.3.4 Couplings

The consideration of the proposed specification for couplings gave rise to several days of highly polemic discussions that ranged from the requirement to check thread dimensions to 0.001 mm to mechanical property tests and statistical sampling to the extent of several unprofitable days.

After weeding out the unrealistic and impractical elements from the steel coupling proposal the same logic was applied to the malliable couplings. After this, it was decided that specifications would cover both ASA and ISO threads.

5.2.4 Dual Sessions

By the middle of the second week it became most obvious that the lack of progress - even including a special session on Saturday - was such that some changes in operation were needed. As a consequence, Director Gomez acted on some suggestions which had been made to him and the delegates were split up into two groups with the balance of the agenda divided between the groups.

This procedure was an inconvenience to those of us who were lone delegates with interests in both groups. However, it did make for more rapid progress, and I had to divide my attention accordingly inasmuch as I was repeatedly called upon to interpret and explain both US and British standards.

By this time in the seminar it had become evident that the incessant injection of preferred numbers, preferred size schedules, and statistical sampling into every discussion was becoming too annoying and wasteful of time This was made more poignant by the wrung-out admission that there were errors in the statistical sampling adopted last year and that it was a mistake to have put these in the proposals. Additionally, in connection with the discussions on couplings, it was decided that there would be no more discussions of statistical sampling until such time as both producers and consumers could present the seminar with operating data showing the relative effectiveness and costs of statistical methods vs presently specified methods.

At a later point in the seminar it was pointed out that the endless discussions on size schedules and gages was of little significance inasmuch as only the "nominal" values were compared, whereas the real significance was in the tolerance range - not the nominal. As a consequence, it was emphatically decided that there would be no further discussion of this subject until complete conclusions, including all tolerances, were submitted for study next year.

Another significant decision was made with respect to tube sizes for boilers wherein all but one delegate agreed to the inclusion of both ASTM and DIN sizes in the specifications.

In taking a poll of the delegates in order to gain some concept of the relative uses of ASTM - and DIN - specified boiler tubes in L. A., the following was revealed

Argentina		80% follow ASTM 20% follow DIN
Brazil		20% follow ASTM (with increasing use) 80% follow DIN (with decreasing use)
Colombia	about	100% follow ASTM
Chile	about	100% follow ASTM
Mexico		95% follow ASTM 5 % follow DIN (with decreasing use)
Peru		95% follow ASTM 5 % follow DIN
Uruguay		50% follow ASTM (with increasing use) 50% follow DIN (with decreasing use)

The USA use is obvious.

5.2.4.1 Boiler Tubes

Committee II took over on these proposal drafts and, having the benefit of the 1963 seminar experiences and current policy decisions with respect to ASTM-DIN inclusion and revision to conventional rather than statistical sampling, made quite rapid progress through these items.

Special attention was devoted to the USA comments concerning re-testing and sampling; it being expected that new phrasing in the original spanish will overcome any possible mis-interpretation.

During the progress of this work, it became increasingly evident that a number of points being incorporated in these new proposals should equally apply to the proposals which were completed last year. As a consequence of this, a general session of all delegates discussed these factors and decided that such changes should be made.

One suggestion for accomplishing this was to hold a special meeting of a small group of seminar "veterans" which would review all pipe and tube actions of both the '63 and '64 seminars, then recommend the necessary changes.

During the study of these tube proposals there was the ever-present minority pressure to "rationalize" tube size schedules. However, the polling of the delegates as to actual use clearly revealed that current practice must, of necessity, play the dominant role.

As was found in Committee I, there are many factors pertaining to finish, defects, etc., wherein the acceptance or rejection is directly associated with the particular end use. Thus the end use should be stated as a Basis of Purchase as is now done in many of the new ASTM specifications. Unfortunately, it seems that COPANT format considers these factors to be a part of "ordering" - and relegates them to an appendix. This has the unfortunate effect of necessitating many "open-end" agreements in the current proposals; these always presenting the possibility of deviating from the objectives of a specification, hence their almost complete elimination from ASTM specifications.

This factor, along with other objectives to the COPANT format resulted in a decision to advise COPANT that its "standard" format was not suitable for these pipe and tube specifications.

5.2.5 Final Session

This was the clean-up period for the seminar, with a review of what tasks had been completed and what needed to be done to finish the few proposals not yet in final draft.

The accomplishments of this seminar in terms of proposals and drafts which may progress to COPANT adoption as "Recommendations" are as follows: -

Proposals

1. Classification of Carbon Steels
2. ISO Threads for Steel Tubes
3. ASA Threads for Steel Tubes
4. Cast Malleable Iron Couplings with ISO Threads
5. Steel Couplings with ISO Threads for General Use
6. Welded and Seamless Steel Tubes for Use
7. Seamless Carbon Steel Tubes for Use at High Temperatures
8. Circular Section Carbon Steel Tubes, Furance - Butt - Welded
9. Circular Section Carbon Steel Tubes, Resistance Welded
10. Circular Section Carbon Steel Tubes, Seamless
11. Welded and Seamless Heavy Type Steel Tubes for Protection of Electrical Conductors
12. Same - Medium
13. Same - Light
14. Electric Resistance Welded Carbon Steel Tubes for Boilers
15. Electric Resistance Welded Carbon Steel Tubes for Service at High Pressures in Boilers and Superheaters

Drafts of Proposals

1. Seamless Carbon Steel Tubes for Boiler Superheaters
2. Seamless Carbon Steel Tubes for High Pressure Boilers
3. Seamless Medium Carbon Steel Tubes for Boiler Superheaters
4. Seamless Carbon-Moly Steel Tubes for Boilers and Superheaters
5. Cast Malleable Iron Couplings with ASA Threads
6. Galvanizing of Steel Tubes

For Information

Preferred diameters and walls for steel tubes

In discussing plans for the next seminar (1965?) on pipe and tubes, and also the need in other areas of the L. A. steel industry, the delegates agreed on an initial agenda for the next seminar and also emphasized certain other needs as follows: -

1965 Seminar on Tubes

Subjects Preferential Order, and Commitment

1. Revision of Recommendations (Standards), Proposals, and Proposal Drafts
2. Cold-formed Seamless Precision Tubes for Mechanical Uses (Argentina)
3. Non-Circular Welded and Seamless Tubes for Mechanical Uses (Argentina)
4. Couplings and Fittings for Conduit Tubes (Mexico)
5. Seamless Tubes for Low Temperatures (Refrigeration) (Uruguay)
6. Estimation of Grain Size of Metals (Submitted as ASTM E112-63, ASA Z30.9-64)
7. Estimation of Inclusion Content of Steels (Submitted as ASTM E45-63, ASA Z30.5-64)

Also suggested as urgently needed COPANT standards

1. Low Alloy Steels (Automotive, etc.,)
2. High Alloy Steels
3. Tin-Plate
4. Larger Sizes of Conduit

Finally, it was agreed that the many "policy decisions" which had been decided during the course of the seminar would be brought together into a list of conclusions, some of which are aimed at removing present restrictions to effective specification - writing - but all of which are pertinent to improving COPANT operation and the quality of its standards.

6.0 Dr. Hoerning's Visit

Dr. Hoerning had extended his U.S. trip to the New York COPANT meetings and did not return to Santiago until the last week of the seminar.

We attended the Rotary Club luncheon devoted to Columbus Day, where the Spanish Ambassador to Chile was the principal speaker; then we had a long and fruitful conversation during which I learned of Dr. Hoerning's efforts in trying to materially expand the standards activities of INDITECNOR.

Such action will require an appreciable increase in staff and supporting capabilities, hence a larger budget. Unfortunately, the impending change in administration in Chile has "frozen" all budgets at the present level. Also, inasmuch as this also affects the directorate of CORFO, the Chilean development corporation with which we (AID) cooperate, no recourse can be looked for there at present.

Having learned at the COPANT meetings in New York of the working agreement which was being worked out with ICONTEC (See NBS No. 8182 and 8564) in Columbia, Dr. Hoerning was most anxious to ascertain the possibilities of a comparable set-up for INDITECNOR in Chile.

7.0 AID Mission

In order to become up-to-date on the activities of our AID Mission in areas that were closely allied with standard activities, I visited AID Headquarters and had a long and interesting conversation with Mr. Green. From this I learned that major emphasis is now being placed in agricultural development rather than industrial, and that an appreciable portion of this is being handled by the California group.

8.0 Conclusions

Despite the several factors which retarted progress during the first half of this seminar, the over-all accomplishments were excellent.

Probably the greatest share of the credit for this must accrue to the seminar "veterans" of last year's pipe and tube seminar who, having come to know each other and each to respect the other's attitudes, could work together for the common good in writing good standards for L. A.

This again emphasizes the great reliance which must be placed on the personal contact aspects of standards work and the necessity for continuity of representation.

From another standpoint, as evidenced by a number of decisions reached during this seminar, this group is becoming more fully aware of the fact that standards reflect our technology, and hence are based on proven experience, not idealistic concepts.

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